US005589455A

United States Patent [19]

Woo

[11] Patent Number: 5,589,455

[45] Date of Patent: Dec. 31, 1996

[54] **CYCLOSPORIN-CONTAINING SOFT CAPSULE COMPOSITIONS**

[75] Inventor: **Jong S. Woo**, Kyunggi-do, Rep. of Korea

[73] Assignee: **Hanmi Pharm. Ind. Co., Ltd.**, Kyunggi-do, Rep. of Korea

[21] Appl. No.: **427,187**

[22] Filed: **Apr. 21, 1995**

[30] **Foreign Application Priority Data**

Dec. 28, 1994 [KR] Rep. of Korea 94-37948

[51] **Int. Cl.**[6] **A61K 37/00**

[52] **U.S. Cl.** **514/11**

[58] **Field of Search** 514/11

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,388,307	6/1983	Cavanak	424/177
4,996,193	2/1991	Hewitt et al.	514/11
5,051,402	9/1991	Kurihara et al.	514/11
5,338,761	8/1994	Nakajima et al.	514/772
5,342,625	8/1994	Haver et al.	424/455
5,350,741	9/1994	Takada	514/3

FOREIGN PATENT DOCUMENTS

90-4348	4/1990	Rep. of Korea .
2228198	2/1990	United Kingdom .

Primary Examiner—Edward J. Cain

Attorney, Agent, or Firm—Lowe, Price, LeBlanc & Becker

[57] **ABSTRACT**

The present invention relates to a soft capsule composition containing a stable microemulsion concentrate which is more stable and suitable for the preparation of cyclosporin-containing soft capsules. More specifically, the present invention relates to a microemulsion concentrate containing cyclosporin as an active ingredient, polyethylene glycol as a cosurfactant, one component or a mixture of two or more selected from the group consisting of an esterified compound of fatty acid and primary alcohol, medium chain fatty acid triglyceride and monoglyceride as an oil component, and a surfactant having HLB value of 10 to 17 such as Nikkol HCO-50 or Tween 20, which is suitable for formulation into soft capsules and to a soft capsule composition containing said microemulsion concentrate. In the microemulsion concentrate according to the present invention, cyclosporin, polyethylene glycol, the oil component and the surfactant are present in the ratio of 1:0.1–10:1–10:1–10, preferably 1:0.5–8:2–6:2–8, by weight. The soft capsule preparation containing polyethylene glycol, ethyl linoleate, caprylic/capric acid triglyceride, oleic acid monoglyceride, Nikkol HCO-50 or Tween 20 according to the present invention is highly stable during storage in comparison with the prior soft capsules containing ethanol, propylene glycol, transcutol, glycofurol, etc., as a cosurfactant, and provides an advantage in that the appearance and composition content of the soft capsule are not changed, and further that since the bioavailability of cyclosporin is about 4 times or more as high as that of the prior commercial products and pharmacokinetic properties of cyclosporin including difference between bioavailabilities in respective subjects are improved, the administration dosage, side effects and costs of the drugs are reduced.

14 Claims, 3 Drawing Sheets